

REMARKS

As of the filing of the present reply, claims 1-73 were pending in the above-identified US Patent Application. Claims 26-57, 60, 61, and 64-73 are currently withdrawn due to a restriction requirement. Applicants hereby affirm the election to prosecute claims 1-25, 58, 59, 62 and 63 on the merits, and have canceled unelected claims 26-57, 60, 61, and 64-73 without prejudice.

In the Office Action, the Examiner acknowledged Applicants' election of claims 1-25, 58, 59, 62 and 63, notified Applicants that three papers cited in the Information Disclosure Statement (IDS) were not included in the IDS and therefore were not considered, objected to the drawings and claims, rejected claims 7, 9, 15-25, 58 and 59 under 35 USC §112, second paragraph, and rejected all of the pending claims under 35 USC §103. In the present reply, Applicants have amended the claims as set forth above. More particularly:

Independent claims 1 and 15 have been amended to specify the "at least one substrate" and the "bottom substrate," respectively, as a "first substrate [1] defining an exterior surface of the [sensor] module [17] and comprising a cavity [6] having an opening at a surface of the first substrate [1]." Support for this limitation can be found in Applicants' Figure 1 and their specification at the top of page 8 ("Note that the shell . . . may be directly

fabricated on the sensor submodule (or some portion thereof); or it may be integral to the inner package, being only defined by a change in material. . . . In some applications, the material of the sensor submodule may be compatible with the environment, in which case a shell is not required and the submodule becomes the completed sensor”).

Independent claims 1 and 15 have been further amended to require a second substrate [4] within the cavity [6] of the first substrate [1] as shown in Figure 1, described in the paragraph bridging pages 7 and 8 of the specification and originally recited in claims 6 and 20, to specify that the sensor/device [2] is supported by the first substrate [1] and exposed on the exterior surface of the module [17] as shown in Figure 1, to use the term “electronics” [3] instead of “electrical circuit” for better consistency with the specification, to specify that the electronics [3] are within the cavity [6], to provide antecedent basis for the “electrical connections” recited in claims 5, 6, 20, etc., and to recite a “means” or “third substrate” [7] (instead of “top substrate” in claim 15) that hermetically seals the opening of the cavity [6] as shown in Figure 1 and described in the first full paragraph on page 9 of the specification.

Independent claim 1 and dependent claims 16, 62 and 63 have been

amended to describe the sensor [2] as adapted to sense a physiological parameter surrounding the module [17], as described in the specification in the last full paragraph on page 8.

Independent claim 15 has also been amended to cancel the word “sensor” since the module was originally recited as containing a sensor and/or actuator, and to cancel the recitation of “five of six possible walls” of the cavity [6].

Dependent claims 5, 6, 22 and 23 have been amended to more clearly recite the embodiment shown in Figure 2 relating to portions of the electrical connections [16] being on the first and second substrates [1,4], including the recess [5] in the first substrate [1], and the complementary wedge shapes [15] of the recess [5] and the end of the second substrate [4], as described in the last full paragraph on page 9 of the specification.

Dependent claims 2-4, 8-14, 16-25, 58, 59, 62 and 63 have been amended for better consistency with their amended parent claims 1 and 15, as well as to address other potential matters relating to clarity.

Dependent claims 19 and 20 have been canceled in view of the amendments to their amended parent claim 15.

Finally, new dependent claims 74 and 75 have been presented to recite

that the first substrate [1] defines a cylindrical-shaped package, as disclosed in last full sentence on page 7 of the specification.

Applicants respectfully believe the above amendments do not present new matter. Favorable reconsideration and allowance of remaining claims 1-25, 58, 59, 62, 63, 74 and 75 are respectfully requested in view of the above amendments and the following remarks.

Restriction Requirement

In the Office Action, the Examiner described Applicants response of February 23, 2009, as admitting that “the species are obvious variants.” Applicants’ statement was that

“the claims are but different definitions of the same disclosed subject matter, varying in breadth or scope of definition.” MPEP §806.03. Furthermore, any search conducted on the claimed invention that is limited to a substrate that is either rigid or flexible would not be a thorough search, since it is well known and ubiquitous in the art to form substrates of rigid (e.g., silicon) and flexible (e.g., flex circuits) materials in the fabrication of semiconductor devices.

This statement relates to the scope of the claims and the burden on the Examiner, and not the obviousness of using a rigid or flexible substrate *per se*.

Information Disclosure Statement

The Examiner cited Applicants' Information Disclosure Statement (IDS) filed in their Application failed to include copies of three non-patent references. Applicants apologize for this oversight, and will file a supplemental IDS shortly.

Objection to the Drawings

The Examiner objected to the drawings under 37 CFR §1.83(a) for failing to show every feature of the invention specified in the claims. In particular, the Examiner explained that the "six cavity walls" recited in claim 15, the multiple sensors recited in claims 17 and 18, and the recess in claim 22 must be shown or the featured cancelled from the claim.

Regarding the recess, Applicants direct the Examiner's attention to Figures 1 and 2 and the recess 5 shown adjoining the cavity 6, as described in the paragraph bridging pages 8 and 9 and now more particularly described in claims 5, 6, 22 and 23.

Applicants have deleted the references in the claims to the six cavity walls and the multiple sensors, which find enabling support in Applicants' specification but are not shown in the drawings.

In view of the above, Applicants respectfully request withdrawal of the

Examiner's objections to the drawings.

Objection to the Claims

Applicants believe the amendments to the claims address each of the grounds for the claim objections, and therefore respectfully request withdrawal of the objections.

Rejections under 35 USC §112, Second Paragraph

Claims 7, 9, 15-25, 58 and 59 were rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as their invention. The Examiner's concerns arose from insufficient antecedent basis in some claims, and lack of clarity in others. In response, Applicants have amended each of these claims in a manner that they respectfully believe overcomes the grounds for the §112 rejections, and therefore respectfully request withdrawal of the §112 rejections.

Rejections under 35 USC §103

Independent claims 1 and 15 and their dependent claims 2-14, 16-25, 58, 59, 62 and 63 were rejected as unpatentable over the combination of U.S.

Patent No. 5,833,603 to Kovacs et al. (Kovacs) and U.S. Patent No. 6,409,674 to Brockway et al. (Brockway) alone, or in further view of Applicants' reply filed February 23, 2009, U.S. Published Patent Application No. 2003/0013969 to Erikson et al. (Erikson), U.S. Patent No. 5,067,491 to Taylor, II et al. (Taylor), U.S. Patent No. 5,951,487 to Brehmeier-Flick et al. (Brehmeier-Flick), and/or U.S. Patent No. 5,807,258 to Cimochoowski et al. (Cimochoowski). Applicants respectfully request reconsideration of these rejections in view of the claims as amended and the following comments.

In all of the rejections, Kovacs was relied on for disclosing a miniature self contained sensor module 30 comprising at least one substrate 40, at least one miniature sensor 32 disposed in part on the substrate 40, and an electrical circuit 36 disposed on the substrate 40, wherein the circuit 36 receives operating power from a magnetic field, conditions a sensor signal, and transmits a conditioned sensor signal to an external signal detection system 38 via magnetic telemetry. Brockway was relied on for disclosing an electrical circuit (presumably 310) that receives operating power from a magnetic field with an inductor coil. As now amended, Applicants' independent claims 1 and 15 require a self-contained module having a first substrate (1) that defines an exterior surface of the module and in which a cavity (6) is formed and contains

a second substrate (4) and electronics (3), including an inductor coil (9) and an integrated circuit die (8). The first substrate (1) also supports a sensor/device (2) exposed on the exterior surface of the sensor module, electrical connections on at least a portion of the second substrate (4), and a means/substrate (7) for hermetically sealing an opening of the cavity (6) and enclosing the electronics (3), second substrate (4) and electrical connections within the cavity (6). In contrast, Kovacs requires the sensor 32, substrate 40 and electronics 34/36 to be encased in a capsule 44 that is a completely separate structure from the substrate 40. As a result, Kovacs' substrate 40 does not form any part of the exterior of the module 30, the substrate 40 lacks and does not need any opening through which the sensor 32, substrate 40 and electronics 34/36 can be placed in the capsule 44, and the module 30 requires an additional manufacturing step to encapsulate the sensor 32, substrate 40 and electronics 34/36. Brockway also employs a separate housing 300 to encapsulate Brockway's sensor 305 and electronics 310. In addition, Brockway requires means for "communicating pressure to pressure transducer 305" within the housing 300. Though Brockway suggests that the pressure-communicating means

is not limited to using pressure transmitting catheter 315. For

example, device 105 alternatively provides a pressure transmitting mechanism that is integrally formed with housing 300 of device 105 rather than extending outwardly therefrom.

Brockway at column 9, lines 20-29.

this does not disclose or suggest placing the sensor 305 itself on the exterior of the housing 300.

Applicants believe the remaining references applied in the §103 rejections also fail to disclose a module configured as recited in independent claims 1 and 15, and that the combination of Kovacs and Brockway, with or without the remaining references, does not disclose or suggest the following additional limitations:

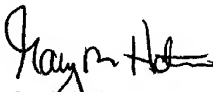
- “the first substrate [1] is an integral part of the sensor [2]” (claim 2);
- electrical connection between the sensor (2) and electronics (3) is through inserting a portion (15) of the second substrate (4) into a recess (5) in the first substrate (1) (claims 6, 7, 22 and 23);
- hermetically sealing an opening to a cavity (6) in the first substrate (1) with a means/substrate (7) bonded to the surface of the first substrate (1) (claims 1 and 15); and
- “the first substrate [1] defines a cylindrical-shaped package that houses the electronics [3] and the inductor coil [9] thereof” (claims 74 and 75).

In view of the above, Applicants respectfully request withdrawal of the §103 rejections of the claims.

Closing

Should the Examiner have any questions with respect to any matter now of record, Applicants' representative may be reached at (219) 462-4999.

Respectfully submitted,



Gary M. Hartman
Reg. No. 38,898

August 13, 2009
Hartman & Hartman, P.C.
Valparaiso, Indiana 46383
TEL.: (219) 462-4999
FAX: (219) 464-1166